PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Identification of Knowledge Translation Theories, Models or Frameworks Suitable for Health Technology Reassessment: A Survey of International Experts
AUTHORS	Esmail, Rosmin; Hanson, Heather; Holroyd-Leduc, Jayna; Niven, Daniel; Clement, Fiona

VERSION 1 – REVIEW

REVIEWER	Albert Farre University of Dundee, UK
REVIEW RETURNED	31-Jul-2020

GENERAL COMMENTS	Thank you for inviting me to review this manuscript, which reports the findings of an international consensus survey to establish is there is a Knowledge Translation (KT) Theory, Model or Framework (TMF) suitable for supporting the implementation of recommendations arising from the Health Technology Reassessment process. This is a well-written, well-organised paper presenting an original and well-designed consensus-building exercise based on a panel of international experts. The study has a number of limitations, but these are well reported and reflected upon by the authors. Overall, I think this paper represents a valuable preliminary contribution which can be taken as a starting point to inform further research in this area.
	Only a few relatively minor suggestions that the authors might want to consider: Introduction – it would be helpful for context to add a bit more detail briefly outlining the potential role of KT in the HTR process and/or how they can be seen as complementary. Methods – if I understand correctly, some of the authors were involved in the recent scoping review update resulted in 36 full-spectrum KT TMFs that were selected in the first stage (identification of Suitable KT TMFs). If that's the case, I would suggest being more explicit about this as this will facilitate to better understand that the authors were actively involved in that work. The Delphi sample should be better described and appropriately justified in the methods section – whilst there's a range of views and some controversy around Delphi sampling, a sample of five (albeit potentially justifiable) is well below most well-known recommendations. The authors rightly note these two points in the discussion/limitations section, but perhaps providing a bit more detail about the sampling rationale in the methods section would be helpful for readers. Likewise, the sample criteria for the international survey phase are not entirely clear from reading the methods section – a target sample size is mentioned but we do not know why 24 was the

target, how was this calculated or how the claimed representativeness was assessed.
On a more general note, I wondered why stage 3 (international survey) was not done as a Delphi too or following any other consensus-based methodology, given that the focus was also to reach consensus using a panel of experts – so perhaps a brief justification of the chosen approach for stage 3 would also be helpful in the methods section.

REVIEWER	Tara Schuller
	Institute of Health Economics, Canada
REVIEW RETURNED	23-Mar-2021

GENERAL COMMENTS	Dear authors,
	Thank you very much for preparing this manuscript of your study into KT theories, frameworks and models for application to health technology reassessment. HTR is an emerging field and the field of KT holds promise to support improved implementation of HTR recommendations.
	The paper itself has some issues that detract from the clarity of the study for the reader. These are noted in the attached PDF with highlights and a comment for each. One of the major observations is the positioning of the modified Delphi study as part of the study, when in fact this appears to have been part of the development of the survey instrument. I recommend to revise the structure of the paper placing the Delphi in the "methods" section as the background to the development of the survey tool. This will resolve the issue of reporting on two different methods in the "results" section. If the Delphi is intended to be understood as part of the investigation, then it would perhaps be more appropriate as a separate paper.
	There are also a number of typographical or punctuation errors and the paper would benefit from a careful review for these. I have marked a few in the attached PDF.
	The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.

REVIEWER	Andrew Cook
	University of Southampton, UK
REVIEW RETURNED	29-Mar-2021

| GENERAL COMMENTS | I have a fundamental disagreement with the authors on line one of the abstract. "Health Technology Reassesment" is in no way an emerging field. It's good practice as a part of Health Technology Assessment, and appraisal practices such as those driven by NICE. NICE, for example, has always put review dates on its guidance, so as to account for technologies evolving and eventually being superseded. Even putting this aside, HTA is a comparative discipline. Assessing a new technology inherently implies that previous technologies for the same indication are the comparator… and hence will be reassessed. See for example the brief discussion of disinvestment from Iñaki Gutiérrez et at in doi: 10.3389/fphar.2017.00014 |
| | So I'm certainly not approaching this issue from the same place as the authors. |

Methods

The method of identifying experts for the international survey is interesting. It's not hard to get a list of international HTA agencies - for example INAHTA offers one at https://www.inahta.org/members/. There are plenty of countries with lively HTA programmes - limiting selection to the 8 countries selected seems artificial.

Survey Administration - it's good to see the experts had the oportunity to add further TMFs to the set. I wonder why the number of participants was artificially limited (P10L56 If surveys were not returned, then another expert on the list was contacted…) - why not just invite everyone? Especially as on P11L46 we are told that some of the data was limited in volume.

Findings
I think the conclusions drawn are reasonable, and too generous to the TMFs. While it's correct the eg CFIR got 85% when combining yes and partially yes views, it got less than 40% yes - eg more than half the responders thought it's not currently appropriate for use. It seems there is no current TMF which this group thinks if fir for this purpose - this does not come across clearly.

I'd like to see more comment on what should happen next. Creating another tool is probably not the right move (https://xkcd.com/927/), so what should happen?

Limitations
The authors identify a range of limitations, most of which I agree with. I do not agree with "Both the KT and HTR communities are relatively new and small" - for HTR at least I have discussed this both in the UK and internationally for over a decade, with people from more than 20 countries.

General

There appears to be an assumption that KT is the right way to approach this issue. I'd like to see some acknowledgement that KT may not be the right approach at all. It would be difficult to know this for sure unless some census can be obtained on a appropriate KT framework to use, which can ten be tested on actual disinvestment / HTR decisions.

The authors are much more excited about KT for this application than I am.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Dr. Albert Farre, University of Dundee
Comments to the Author:

Thank you for inviting me to review this manuscript, which reports the findings of an

international consensus survey to establish is there is a Knowledge Translation (KT) Theory, Model or Framework (TMF) suitable for supporting the implementation of recommendations arising from the Health Technology Reassessment process. This is a well-written, well-organised paper presenting an original and well-designed consensus-building exercise based on a panel of international experts. The study has a number of limitations, but these are well reported and reflected upon by the authors. Overall, I think this paper represents a valuable preliminary contribution which can be taken as a starting point to inform further research in this area.

Thank you for this feedback.

Only a few relatively minor suggestions that the authors might want to consider: Introduction – it would be helpful for context to add a bit more detail briefly outlining the potential role of KT in the HTR process and/or how they can be seen as complementary.

The potential role of KT in the HTR process and/or how they can be seen as complementary has been described in a previously published paper (Esmail R, Hanson H, Holroyd-Leduc J, Niven DJ, Clement F. Knowledge translation and health technology reassessment: identifying synergy. BMC Health Serv Res. 2018;18:674). We have added the following sentences lines 106 to 109 on page 6 to clarify this relationship: "In essence, KT is the application of putting knowledge into practice and policy. KT approaches could be used in the HTR process to bridge the gap between the generation of recommendations regarding optimal technology use and their implementation in practice."

Methods – if I understand correctly, some of the authors were involved in the recent scoping review update resulted in 36 full-spectrum KT TMFs that were selected in the first stage (identification of Suitable KT TMFs). If that's the case, I would suggest being more explicit about this as this will facilitate to better understand that the authors were actively involved in that work.

This has been clarified on page 8 line 141.

The Delphi sample should be better described and appropriately justified in the methods section – whilst there's a range of views and some controversy around Delphi sampling, a sample of five (albeit potentially justifiable) is well below most well-known recommendations. The authors rightly note these two points in the discussion/limitations section, but perhaps providing a bit more detail about the sampling rationale in the methods section would be helpful for readers.

This section has been renamed "Consensus on list of KT TMFs using a Modified Delphi Process" on page 8 line 147. The sampling rationale is provided in the methods section on page 8 lines 149 to 153 as follows: "To ensure that the list of 36 full-spectrum KT TMFs was adequate and concise, a convenience sample consisting of the authors of this study reviewed this initial list to determine if any KT TMFs had been missed or could be eliminated based on HTR suitability.   This sample was considered suitable as the authors had clinical training combined with expertise in KT or HTR and/or were experts at the doctorate level in these fields."

Likewise, the sample criteria for the international survey phase are not entirely clear from reading the methods section – a target sample size is mentioned but we do not know why 24 was the target, how was this calculated or how the claimed representativeness was assessed.

Twenty-four experts was the target as we were aiming for 2 KT and 2 HTR experts from the Canada, US, UK, Australia (n=16) and four HTR and four KT experts from other European countries combined (n=8), for a total of 24. This has been clarified on page 10 lines 182 and 183.

The representativeness of the sample was assessed by ensuring that experts came from different jurisdictions with a depth and breadth of knowledge in either KT or HTR or both. This has been added on page 10 lines 186 and 188.

On a more general note, I wondered why stage 3 (international survey) was not done as a Delphi too or following any other consensus-based methodology, given that the focus was also to reach consensus using a panel of experts – so perhaps a brief justification of the chosen approach for stage 3 would also be helpful in the methods section.

Initially, we had planned to do the international survey as a modified Delphi. However, analysis of the data from the survey which was to be round one of the modified Delphi indicated that ≥ 70% consensus was not reached on HTR suitability for any of the 16 KT TMFs. As a result, rather than proceeding with round two of the modified Delphi process, the authorship team decided to further investigate the key characteristics of a KT TMF for HTR that maybe important to consider. Subsequently, we asked the experts to participate in a telephone interview using a semi-structured interview guide to further interrogate the key elements, attributes, constructs of the KT TMFs that would influence and demonstrate an important role within the process of HTR. This qualitative study has been submitted for publication and is currently under review.

Reviewer: 2
Dr. Tara Schuller, INAHTA Secretariat, c/o Institute of Health Economics
Comments to the Author:
Dear authors,
Thank you very much for preparing this manuscript of your study into KT theories, frameworks and models for application to health technology reassessment. HTR is an emerging field and the field of KT holds promise to support improved implementation of HTR recommendations.

Thank you for this feedback.

The paper itself has some issues that detract from the clarity of the study for the reader. These are noted in the attached PDF with highlights and a comment for each.

We thank reviewer 2 for the in-depth copy-editing directly on the paper. If the paper is accepted, we presume that the paper will undergo copy-editing by the editorial team as part of the journal process. As such, we have incorporated the suggested changes where appropriate, not noting them in our response in the letter to the editor but on the attached PDF. We have focused on the main reviewer's comments which have been addressed in this letter to the editor and the tracked changes document.

One of the major observations is the positioning of the modified Delphi study as part of the study, when in fact this appears to have been part of the development of the survey instrument. I recommend to revise the structure of the paper placing the Delphi in the "methods" section as the background to the development of the survey tool. This will resolve the issue of reporting on two different methods in the "results' section. If the Delphi is intended to be understood as part of the investigation, then it would perhaps be more appropriate as a separate paper.

We respectfully disagree. The modified Delphi is not part of the development of the survey tool but was a consensus method used to review the initial list of 36 KT TMFs to determine if any KT TMFs had been missed or could be eliminated as they may not be suitable for HTR. This has been described in the methods section on page 8 lines 149 to 153.

There are also a number of typographical or punctuation errors and the paper would benefit from a careful review for these. I have marked a few in the attached PDF.

Please see above comment regarding our response to copy-editing. We have reviewed the comments in the attached PDF and tracked changes document, where appropriate.

Reviewer: 3
Dr. Andrew Cook, University of Southampton
Comments to the Author:
I have a fundamental disagreement with the authors on line one of the abstract. "Health Technology Reassessment" is in no way an emerging field. It's good practice as a part of Health Technology Assessment, and appraisal practices such as those driven by NICE. NICE, for example, has always put review dates on its guidance, so as to account for technologies evolving and eventually being superseded. Even putting this aside, HTA is a comparative discipline. Assessing a new technology inherently implies that previous technologies for the same indication are the comparator… and hence will be reassessed. See for example the brief discussion of disinvestment from Iñaki Gutiérrez et at in doi: 10.3389/fphar.2017.00014

So I'm certainly not approaching this issue from the same place as the authors.

We agree with the reviewer's comment that HTR is good practice as part of HTA. As mentioned in the paper by Gutierrez et al, 2017 with the advent campaigns such as Choosing Wisely, "disinvestment has certainly gained ground…but further research on sources for the identification of obsolete technologies and their consequences in health care systems is needed". Consequently, there is still work to do with the HTR process, particularly in the identification of technologies and implementation of HTR recommendations. We have removed the word "emerging" from the abstract on line 44, page 3 of the abstract.

Methods

The method of identifying experts for the international survey is interesting. It's not hard to get a list of international HTA agencies - for example INAHTA offers one at https://www.inahta.org/members/. There are plenty of countries with lively HTA programmes - limiting selection to the 8 countries selected seems artificial.

Our focus was to identify experts who were specfically knowledgeable and had experience in the field of HTR. Therefore, we used the targetted list of individuals from the Health Technology Assessment International disinvestment and early awareness group, authors of relevant publications, and in consultation of other experts to determine potential names as we anticipated that this would generate experts most interested and with practical experience in the field of reassessment/disinvestment. Through snowball sampling, experts who were intially contacted could also suggest additional names of experts to be surveyed. By using these methods for identiying experts, 31 HTR experts were contacted to participate in this study and effort was made to obtain a response with one follow up email. The representativeness of the sample was assessed by ensuring that experts came from different jurisdictions with a depth and breadth of knowledge in either HTR or both HTR and KT. This has been clarified on page 10 lines 186 and 188.

We acknowledge that the International Network of Agencies for Health Technology Assessment (INAHTA) has a list of HTA agencies but not all HTA agencies have HTR as their part of their program as described by the following study that found that 49 of the 91 respondents surveyed were not considering HTR as part of their program (Leggett LE, Noseworthy T, Zarrabi M, Lorenzetti D, Sutherland L, Clement F. Health Technology Reassessment of Non-Drug Technologies: Current Practices. Int J Technol Assess Health Care. 2012;28(3):220-7). Therefore, the INAHTA list may not have been able to provide experts specifically with an interest and practical application of HTR.

Survey Administration - it's good to see the experts had the opportunity to add further TMFs to the set. I wonder why the number of participants was artificially limited (P10L56 If surveys were not returned, then another expert on the list was contacted…) - why not just invite everyone? Especially as on P11L46 we are told that some of the data was limited in volume.

Our focus for the sample of participants was to ensure that we had experts from different jurisdictions with a depth and breadth of knowledge in KT or HTR or both. Therefore rather than casting the net widely, we wanted to ensure we had a representative sample of HTR and KT experts from different jurisdictions. Our goal was to have **at least** 2 HTR and KT experts from Canada, US, UK, Australia and 4 HTR and KT experts from European countries. This has been clarified on page 10 lines 182 and 183. Our target sample was 24 and we had 22 experts participate in total.

The data was limited in volume as not all of the experts provided additional comments within the survey as this was optional.

Findings
I think the conclusions drawn are reasonable, and too generous to the TMFs. While it's correct the e.g. CFIR got 85% when combining yes and partially yes views, it got less than 40% yes - eg more than half the responders thought it's not currently appropriate for use. It seems there is no current TMF which this group thinks if fir for this purpose - this does not come across clearly.

To clarify, CFIR received 86% when combing % yes (36%) and partially yes (50%) responses from the experts. Five percent of the experts thought it was not appropriate and 9% of the experts were unfamiliar with it. Therefore, we respectfully disagree with the reviewer that more than half of the responders thought CFIR was 'not currently appropriate for use' as there were 50% of the experts that partially agreed with its use. We have strengthen the wording that there is no current KT TMF for HTR in line 354 on page 17 and line 404 on page 19.

I'd like to see more comment on what should happen next. Creating another tool is probably not the right move (https://xkcd.com/927/), so what should happen?

As consensus was not reached in round one of the modified Delphi, the authorship team determined that the next step should be to further investigate the key characteristics of a KT TMF for HTR that maybe important to consider. Subsequently, we asked the experts to participate in a telephone interview using a semi-structured interview guide to further interrogate the key elements, attributes, constructs of the KT TMFs that would influence and demonstrate an important role within the process of HTR. This qualitative study has been submitted for publication and is currently under review. This has been articulated in the section "Implications for future research" in lines 454 to 459 on page 22.

Limitations
The authors identify a range of limitations, most of which I agree with. I do not agree with "Both the KT and HTR communities are relatively new and small" - for HTR at least I have

discussed this both in the UK and internationally for over a decade, with people from more than 20 countries.

We agree with the reviewer that both communities have gained more attention in recent years. Subsequently we have modified lines 388 to 393 on page 19 to reflect this.

General

There appears to be an assumption that KT is the right way to approach this issue. I'd like to see some acknowledgement that KT may not be the right approach at all. It would be difficult to know this for sure unless some census can be obtained on a appropriate KT framework to use, which can ten be tested on actual disinvestment / HTR decisions.

The authors are much more excited about KT for this application than I am.

We appreciate the reviewer's perspective on KT and its application to HTR decisions. The argument of the application of KT to HTR has been made in the following paper: Esmail R, Hanson H, Holroyd-Leduc J, Niven DJ, Clement F. Knowledge translation and health technology reassessment: identifying synergy. BMC Health Serv Res. 2018;18:674. In this paper, it is posit that HTR would benefit from KT approaches in the implementation of recommendations in practice. While KT approaches have been used to implement new interventions, there is a lack of understanding on how KT approaches could be applied to HTR and in particular to the removal or decreased use of technologies. Moreover, recent literature on the development of a theory-based de-implementation framework suggests the use of implementation science and behaviour change theories would be important to consider in the identification of factors that explain and influence behaviour and in the selection of behaviour change strategies to address barriers. (Grimshaw JM, Patey AM, Kirkham KR, Hall A, Dowling SK, Rodondi N, et al. De-implementing wisely: developing the evidence base to reduce low-value care. BMJ Qual Saf. 2020:bmjqs-2019-010060). Therefore, our perspective is that there may be merit to apply the fields of KT and implementation science to HTR. However, this has yet to be tested in practice. We have clairifed this in lines 429 and 430 page 21 and lines 478 and 479 page 23.

VERSION 2 – REVIEW

REVIEWER	Cook, Andrew University of Southampton, Wessex Institute
REVIEW RETURNED	05-May-2021

GENERAL COMMENTS	Thanks for the responses and clarifications. While I don't 100% agree with the paper's conclusions, I'd happy to see this paper contributing to the literature and discussion.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 3
Dr. Andrew Cook, University of Southampton
Comments to the Author:
Thanks for the responses and clarifications. While I don't 100% agree with the paper's conclusions, I'd happy to see this paper contributing to the literature and discussion.

We appreciate the reviewer's perspective. We agree that our paper will contribute and advance the literature on the application of KT to the field of HTR.